

The BFGoodrich Company
Chemical Group

R R 1, Box 15
Henry, Illinois 61537
309-364-2311

October 25, 1983

Certified Mail No. 1328 013438

Mr. Robert A. Wengrow, Manager
Rockford Region Field Operations Section
Illinois Environmental Protection Agency
Division of Land Pollution Control
P.O. Box 915
Rockford, IL 61105

EPA Region 5 Records Ctr.



296059

Dear Mr. Wengrow:

In follow-up to our discussion during the September 29, 1983 meeting at your Rockford, Il. office, the BFGoodrich Henry Facility is submitting the following data and information:

1. Elevations of the Henry Facility's test wells (see attachment A);
2. The best estimated rate of groundwater flow under the Henry Facility, based upon information accumulated by the Woodward-Clyde Report (see attachment B);
3. Analytical data of Benzene concentrations in samples taken on Henry Facility Wells 2, 3, and 10; and on Stadel's well (see attachment C);
4. The results of our investigations into possible sources of benzene in the groundwater. The investigative efforts centered around leak-testing our underground facilities (i.e., storage tanks and sewer line).

The results of the underground storage tank tests showed them all being "tight" as defined by the NFPA Petrotight Test for underground tanks.

The test of the underground industrial sewer line from the process buildings to the waste treatment equalization basin indicated the line was leaking. Action was immediately taken to divert all process streams from this line to an above ground temporary line. The Henry Facility will maintain this temporary line until either the leak is repaired and the underground line can be returned to service or a permanent alternate line can be installed.

We have been unable to determine when this leak began. The line was leak checked after its installation in 1977 and was secure at this time. Although we cannot definitely prove this is the source of Benzene, the source is highly suspect.

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Mr. Robert A. Wengrow, Manager
Page 2
October 25, 1983

Once again, we appreciate the opportunity to meet with you and discuss our concerns. We hope this information will be helpful and, if you have any further questions, please feel free to call me at 309-364-2311.

Sincerely,


R. J. Grahek

wpgh19/2556A-89

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BFGOODRICH
HENRY, ILLINOIS FACILITY
TEST WELL ELEVATIONS
(SEPT. 28, 1983)

<u>WELL NO.</u>	<u>DEPTH TO WATER TABLE (FT.)</u>	<u>ELEV. OF MEASURING POINT (FT.)</u>
TW-5	58	505.38
TW-7	60	502.66
TW-2	57	503.22
PH-9	62	----

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RATE OF GROUND WATER FLOW FOR
BFGOODRICH, HENRY, ILLINOIS LOCALE

$$v = \frac{P \cdot i}{7.48a}$$

$$= \frac{3000 \text{ gpd/ft}^2}{7.48 \text{ g/ft}^3} \cdot \frac{(5/1900)}{(0.1)}$$

$$= 11 \text{ ft/day}$$

$$\text{say } \dot{=} 10 \text{ ft/day}$$

v = velocity
p = Permeability (gpd/ft²)
i = Hydraulic gradient (ft/ft)
a = Effective Porosity
= Specific yield

$$P = 3000 \text{ gpd/ft}^2$$

$$i = 5/1900 \text{ ft/ft}$$

$$a = 0.1$$

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BFGOODRICH - HENRY, IL. FACILITY

BENZENE CONCENTRATIONS, (ppb), IN WELL SAMPLES

DATE	WELL #2	WELL #3	WELL #10	STADEL'S WELL	
3/1/78	----	90,000	----	----	
3/1/83	2,340	44,000	678	----	
4/6/83	850	----	N/D	N/D	*N/D = None Detected
6/6/83	8,600	----	23	N/D	
6/22/83	1,325	----	N/D	N/D	
7/1/83	----	----	N/D	N/D	
7/27/83	----	----	N/D	N/D	
8/5/83	5,050	74,000	N/D	N/D	
8/15/83	3,500	50,000	N/D	N/D	
9/19/83	----	----	----	N/D	

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SEP 21 1983

ILL. E.P.A. - D1 P.C.
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DATE: January 6, 1982

TO: Division File ✓

FROM: Kenneth S. Bardo y.f.

SUBJECT: Groundwater Contamination -- Marshall Co. - LPC 1280510
Henry/B.F. Goodrich Chem. Co.

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STATE OF ILLINOIS

I visited this site accompanied by Ken Newman and Lyle Ray of the DWPC Peoria Regional Office for the purpose of sampling their wells for organic contamination resulting from past spills. Don Lou, Associate Chemist for B.F. Goodrich, escorted us, answered questions, and took duplicate groundwater samples. We met Ken Konter, Plant Environmental Engineer, at the end of the day.

Four sample points were utilized, G101, G102, G103, and G201 (see attached diagrams). Sample G101 represents water pumped from Well #3. The sample was obtained from a hose entering the treatment pond approximately 50' south of the well-head. The water had been purged from the well approximately 2 hours beforehand. This well is occasionally pumped, as process limitations allow, into the treatment pond in an attempt to purge the groundwater which has been shown to be contaminated with acetone and acetonitrile. The well was drilled in 1965 and taken out of service in early 1966 because of initial problems associated with the groundwater such as odor and Fe-bacteria. The water sample was very warm (66°F), foaming, and light gray with a rubber/chemical odor.

Sample G102 represents water pumped from Well #2. This well water is used to clean out the floor drains in the warehouse and main processing plant. The sample was obtained from a pipe in the warehouse building after letting the water run a few minutes. The pipe terminates at the end of a floor drain covered by a grate. The water sample was warm (59°F) and clear with a rubber-like odor. Well #2 has been contaminated with acetone.

Sample G103 represents water pumped from Well #10. This well is used for drinking water and general purposes. The sample was obtained from a cold water tap in a sink at the southeast entrance of the laboratory building after purging the line a few minutes. The water was clear with no odor.

Sample G201 represents household water used at the Stadel residence across the street near the southwest corner of the plant complex. Twenty gallons were purged from a hydrant within Mr. Stadel's barn before sampling. The water was clear with no odor.

All samples were obtained in 1 gallon organic jugs filled to the brim. An organic scan will be done on all samples but testing specifically for acetone, acetonitrile, diisobutylene, and diphenylamine. Both acetone and acetonitrile are water soluble.

Diisobutylene acts like oil and is insoluble in water. Diphenylamine would occur in solid form and not be expected to mix with water. Our results will be used as a comparison with monthly results submitted by B.F. Goodrich. Known problems of analysis with their GC and limited forms of organics analyzed by B.F. Goodrich indicate that their results are inconclusive as far as determining the exact extent of groundwater contamination. The initial poor quality of water obtained from Well #3, persistence of the contamination years after the spill, and the location of the two contaminated wells on the east side of the plant complex where groundwater would be expected to flow toward indicates the problem may be more continuous and extensive than currently realized.

Well construction on site is not ideal either for determining groundwater pollution. All of the wells were drilled from 100' - 110' through sand and gravel, cemented, and cased to the full depth. The water table was intercepted at 50' - 60'. Any pollutants occurring on the surface or upper portion of the water table might not be accounted for in the sample analysis. Drawdown might be extensive enough around the heavy-use wells, nos. 7, 8, 9, and 10, to intercept the upper portion of the water table but their location upgradient of the spills should prevent the possibility of organic contamination within them. Well #2 is downgradient but the extent of water-use is unknown. Because this water is used for cleaning purposes, there may be times where drawdown would be significant enough to intercept the upper water table. The sand and gravel nature of the aquifer-bearing deposits however indicates that recharge would occur rather quickly in the location of the drawdown.

Mr. Lou stated that there were 1½" diameter test wells occurring on the west end of the plant area that were used to determine the level of the water table. These types of wells would be more useful for sampling. Due to their location however, it was decided not to sample them this day. It should be noted though that due to lime lagoons on site being permitted by Land Pollution Control of the IEPA, the Agency reserves the right to require installation of monitor well(s) as may be necessary to fulfill the intent of the Environmental Protection Act (see Rauf Piskin's letter dated 2/27/80).

The interceptor pit that failed on 4/2/80 resulting in the Agency's involvement has been replaced satisfactorily to prevent further spills. It use to serve as an area to settle solids but is basically a reservoir in the sewer line now. It consists of a fiberglass tank inlaid in a concrete box. The fiberglass will prevent concrete failure which previously occurred and resulted in the spill of wastewater coming from the polymer chemical building. Other safety equipment has also been installed as outlined in the repair analysis submitted to the Agency by B.F. Goodrich.

The acetone spill occurred in the fall of 1978 in the sewer system leading to the equalization lagoon. Solvents had eaten through a new acid-resistant, epoxy-based, concrete sewer system just installed. Now the sewer lines have been lined with fiberglass to prevent further spills.)

In addition to these problems, I will attempt to follow-up their sludge lagoons permitted by DWPC in 1977. With new construction occurring now enabling them to form a sludge cake for offsite disposal, the active sludge lagoon may become obsolete and be covered. Two other sludge lagoons may have been covered already. This matter should be looked into more fully to determine the ramifications. DWPC in Peoria will be contacted to discuss the matter and obtain the permits.* Over a long term, the 1' - 1½' clay liners in the lagoon may not be adequate to prevent groundwater contamination from the sludge constituents.

* Talked to Lyle Ray on 1/12/82. He will send the permit and any pertinent information to this office.

Enclosures: 2 Sketch Diagrams

KSB:ksb

cc: Rockford Region

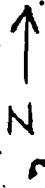
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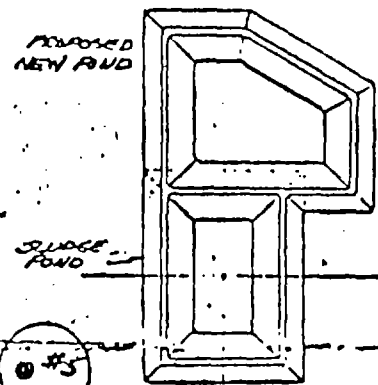
ILL. EPA

WELL STATUS

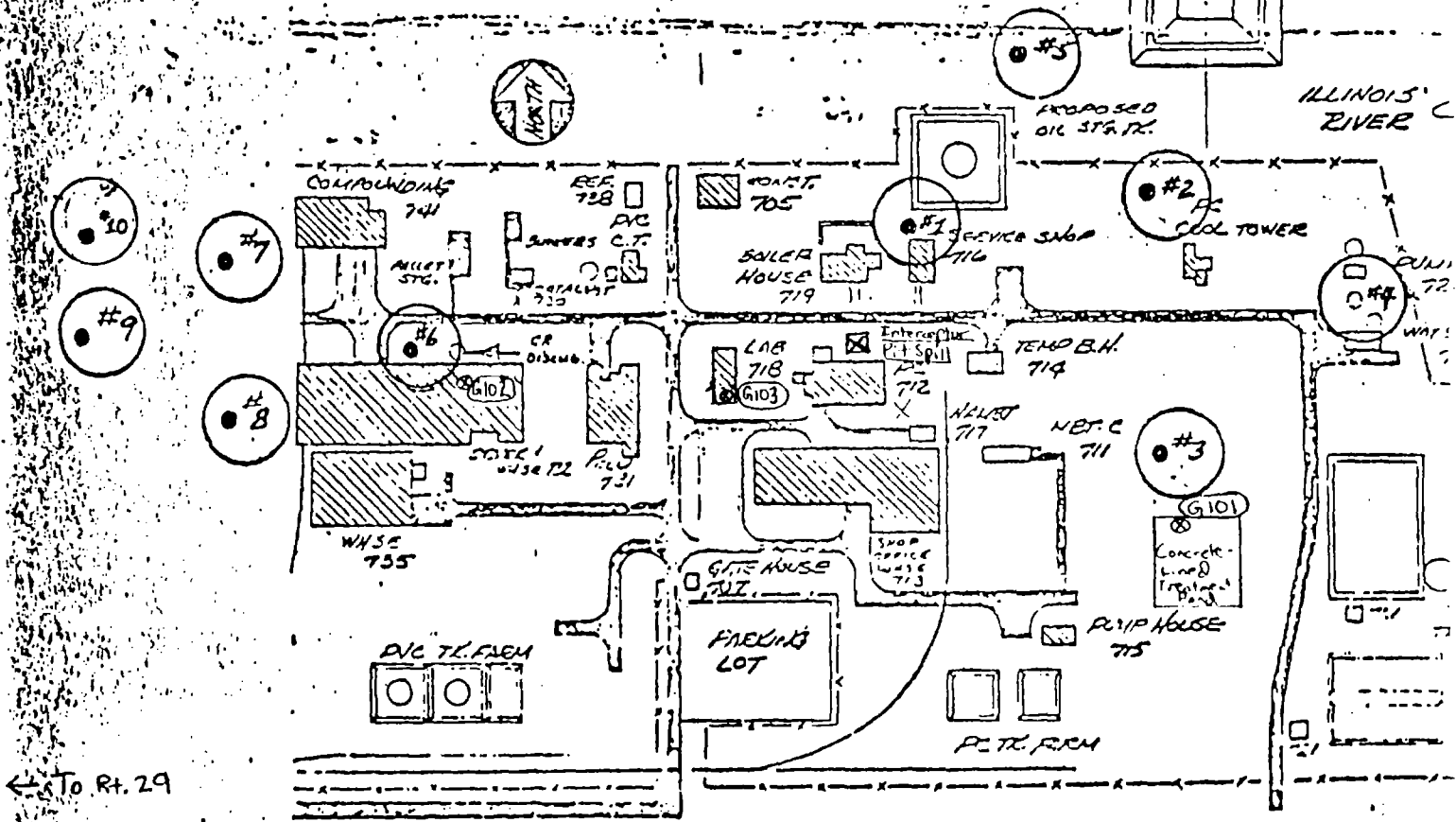
- #1 - Abandoned & Plugged.
- #2 - Used for Flushing Floor Drains. } SAMPLED
- #3 - Inactive: Poor Water Quality. }
- #4 - Abandoned & Not Plugged.
- #5 - Abandoned & Plugged.
- #6 - Abandoned & Plugged.
- #7 - Used in Processing.
- #8 - Used in Processing.
- #9 - Used in Processing.
- #10 - Plant Drinking Water } SAMPLED
- Stadel - Private Residence



ILLINOIS
RIVER



ILLINOIS
RIVER



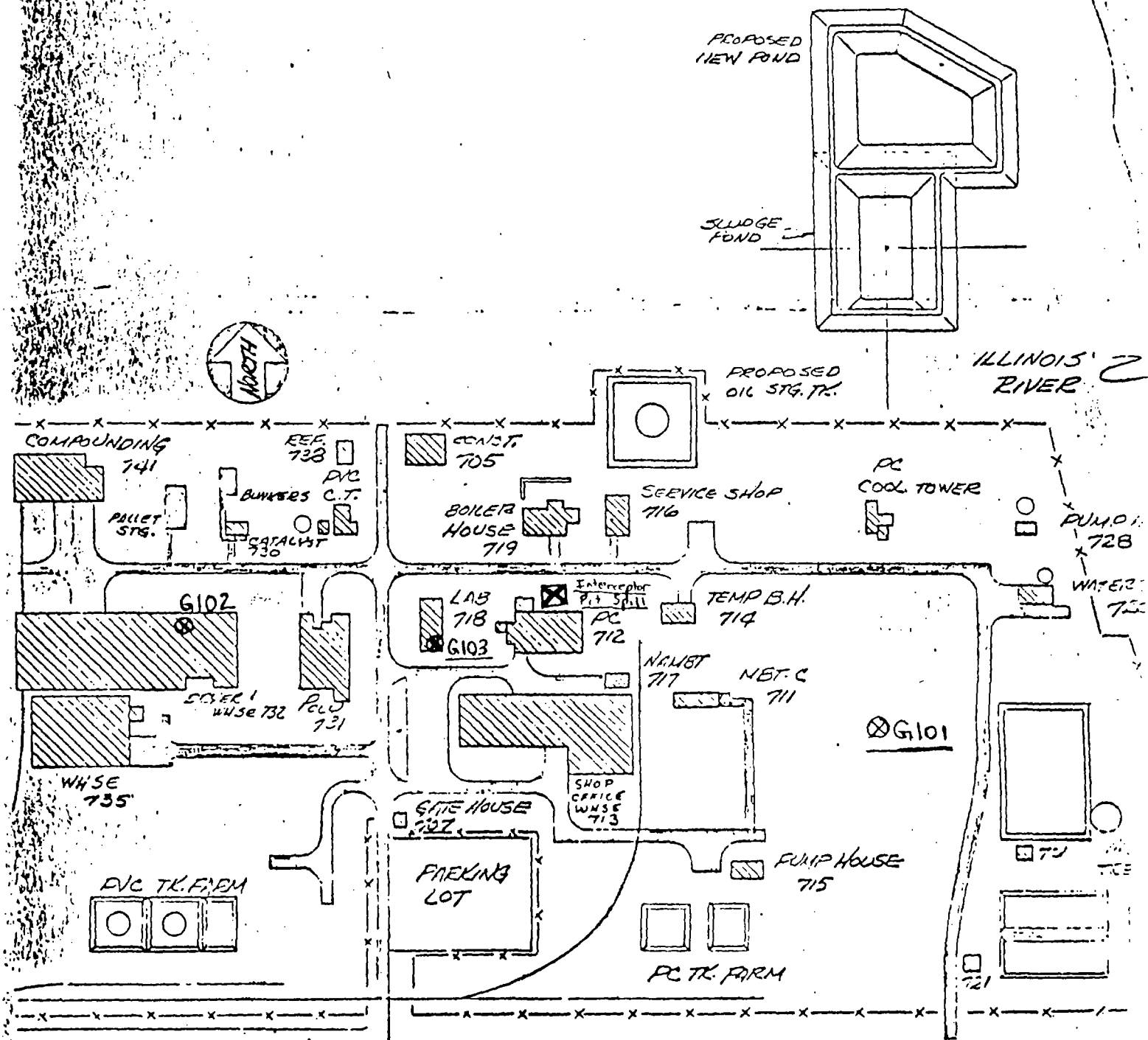
B. F. GOODRICH CHEMICAL CO.

PLAN OF HENRY, ILL. PLANT

1-6-82

KH.

ILLINOIS
RIVER



B. F. GOODRICH CHEMICAL CO.

PLAN OF HENRY, ILL. PLANT

1' ± 300'

⊗ G201

AH-1

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

INTER-OFFICE CORRESPONDENCE

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JUN 21 1984

ILL. E.P.A. - D.L.P.C.
STATE OF ILLINOIS

DATE: 6/21/74

MEMO TO: DWPC/Field Operations Section

FROM: Region I - Gerald Kehoe *Gerald M. Kehoe*

SUBJECT: MARSHALL COUNTY - B. F. Goodrich Chemical Company (Henry)
Engineering Inspection

On June 21, 1974, I met with Dave Giffin, Environmental Engineer of the subject company, concerning the chemical plant's wastewater treatment facilities and systems for handling accidental spills. The plant is located about a mile north of Henry on Route 29. (Telephone: 309/364-2311).

Permit #1971-EB-602 authorized the existing activated sludge wastewater treatment facility. Permit #1972-EB-1649 authorized additions to this facility. Also, Permit #1974-EB-572 authorized further modifications to the system which will provide for one outlet from the B. F. Goodrich Company. Presently there are three discharges from the subject plant; they are: a stormwater discharge, a filter backwash discharge from the water treatment facility and a discharge from the industrial waste treatment plant. These modifications should be completed this year. The plant design average flow is 1.08 MGD.

Operating permit #1974-EB-573 was issued April 4, 1974, for the subject treatment facility. The industrial waste treatment facility includes pond #1 which receives waste from the polyvinyl chloride process and the polymer chemical process. This pond serves as an equalization basin where the two waste streams are blended. Two 500 gpm pumps discharge from this basin to a series of tanks for pH adjustment, coagulation, flocculation and sedimentation. The settled sludge is discharged to one of the two sludge-holding ponds. The clarified effluent is mixed with returned activated sludge and then discharged to an aerated holding basin. This basin is about 800,000 gallons and contains two floating aerators. Effluent from this aeration unit is then discharged to a final clarification tank, which in turn discharges to a polishing pond. Final effluent from this system is discharged to the Illinois River. (See the attached flow diagram.)

The waste treatment system contains a 468,000 gallon diversion basin for entrapment of accidental spills. Also, the sewer system contains interceptor chambers for diversion of accidental spills.

The operation of the waste treatment facility was discussed with Engineer Dave Giffin and Plant Operator Ray Craig. It appears that the waste treatment facility was operating within established effluent standards until about January of this year. About this time the plant was disrupted by a breakdown in the sludge return facilities of the final clarifier. As a result of this breakdown, there was a loss of a considerable portion of the micro-organisms in the treatment facility. New micro-organisms were introduced to the system from the Peoria Treatment Facility. However, since that time the plant

EVERY INTER-OFFICE LETTER SHOULD HAVE ONLY ONE SUBJECT.
ALL LETTERS TO BE SIGNED . . . NO SALUTATION OR COMPLIMENTARY CLOSING NECESSARY.

6/21/74

has not performed as well as in 1973.

According to the operating reports, the effluent from the plant has been above the limit. This lack of performance could be attributed to one of three things: (1) the substantial increase in the raw waste entering the plant as a result of process changes and the water conservation program; (2) unreported spills or toxic waste materials into the sewer system which would disrupt the treatment plant operation; and (3) insufficient solids concentration in the aeration basin. At present the solids concentration is being carried at about 1700 ppm. The company plans to increase this to about 2000 ppm or more in the near future.

Also, Engineer Giffin plans to monitor the polymer chemical raw waste line which discharges to the treatment facility. This line is suspected of contributing toxic chemicals to the treatment system. According to company policy, accidental spills of toxic materials are to be reported to the Environmental Engineer in order that they may be isolated either at the interceptor chambers at each of the process buildings or diverted to the holding basin at the treatment facility.

Plant operators are now visually monitoring the polymer chemical line and grab sampling this waste if it appears to be out of the ordinary. It was suggested that the operators visual observations and any grab sampling, as a result of abnormal discharges in this polymer chemical waste line be reported on a monthly operating reports to the Agency.

Mr. Giffin was advised that the EPA Sample Collector, Daniel Ray, would contact him in order to sample the raw waste lines from the polyvinyl chloride process and the polymer chemical process. These raw waste samples would be collected in addition to the final effluent discharge from the facility. Mr. Giffin advised that since the polymer chemical process is a batch treatment process, it may require several samples before any conclusions can be drawn.

The effluent from the treatment facility which was being discharged to the river was turbid and had a slight brown color.

During the inspection of the facility, it was suggested to Engineer Giffin that the abandoned sewer line from the influent polymer chemical sewer to the final polishing pond be permanently sealed (it is now plugged), and the valves be removed in order to prevent any accidental discharge of chemical wastes into the final polishing pond. Also, it was suggested that the final 20 ft. of sludge discharge line to the northern sludge lagoon be permanently installed. At present the last 20 ft. of this line is laying above ground and being held in place by a number of concrete blocks and sand bags.

Following the inspection Engineer Giffin and I met with Plant Manager Charles Cooper and Director of Professional Services, Al Otto. At this meeting two major items were discussed: (1) the need to improve the effluent quality from the waste treatment plant, and (2) the need to prevent future accidental discharges of waste materials from the plant to the river.

An accidental discharge had occurred on Tuesday, June 18, from about 8 a.m. to about 3 p.m. See the attached management communicator from the plant manager,

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ILL. E.P.

6/21/74

Charles Cooper, to plant supervisory personnel. This memorandum is dated June 20, 1974.

During the meeting the exact cause of this spill was discussed. On June 18, 1974, the sewer line was being repaired in front of the process building #712 because it was discovered that process waste from the polymer chemical process was leaking from the sewer system into the ground. The area was excavated to repair the line. During the repair of this sewer line, assistant general foreman, James Mattingly, of the polymer chemical process authorized the diversion of waste from the sewer which was being repaired onto the adjacent ground. Reportedly, he understood that the repair would only take a short time. Furthermore, he was not aware that the diverted waste material could reach the river. The sewer repair project was then left in the hands of the construction engineer who supervised the repair of the sewer and was unaware of the fact that the diverted waste material had reached a storm drainage ditch and discharged to the river.

The situation was not brought to the attention of the Environmental Engineer or other plant personnel until about 3 p.m. By this time the repair had been completed and the waste materials were being again discharged to the sewer system tributary to the waste treatment plant.

Engineer Giffin inspected the discharge point at the river and the river bank downstream from the discharge point for about a mile. He advised that he did not observe any dead or distressed fish. Samples were not collected.

Attached is a weekly waste treatment data sheet which shows the usual concentration of this polymer chemical waste. Also attached is layout of the plant system which shows how the waste reached a ditch and discharged to the river. Engineer Giffin estimated the waste discharge was at a rate of about 100 gpm.

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ILL. E.P.A. - D.L.P.C.
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cc: Region I
D. Ray

GMK/ss
Att.

~~6/24/74~~

8/10 *U/S*

MARSHALL COUNTY

B.F. GOODRICH CHEMICAL CO.



NEW SLUDGE
POND
250' X 150'
APPROX
LOCATION
SEE SET LEFT

ILLINOIS
RIVER

STORM

SEWAGE DITCH

FENCE 2

COOLING
TOWER

FOR IDENTIFICATION
LINES SEE EN 1460

SECONDARY SYSTEM
ILLINOIS EPA PERMIT
GRANTED AUG. 25, 1971
LOG #971 C-68
PERMIT #1971-EB-602

REACTION
BASIN

EXIST.
SLUDGE
POND
(NEARLY FULL)

NEW PUMP
PIT

EXIST. IND. 31300

PUMP

EXIST.
FLOWER

PRIMARY SYSTEM

EXISTING

TRANSFORMER

WASTEWATER

PARALLEL WITH
15" HD 15' DIA

WOOD

WOOD

WOOD

WOOD

WOOD

0+0

2+0

4+0

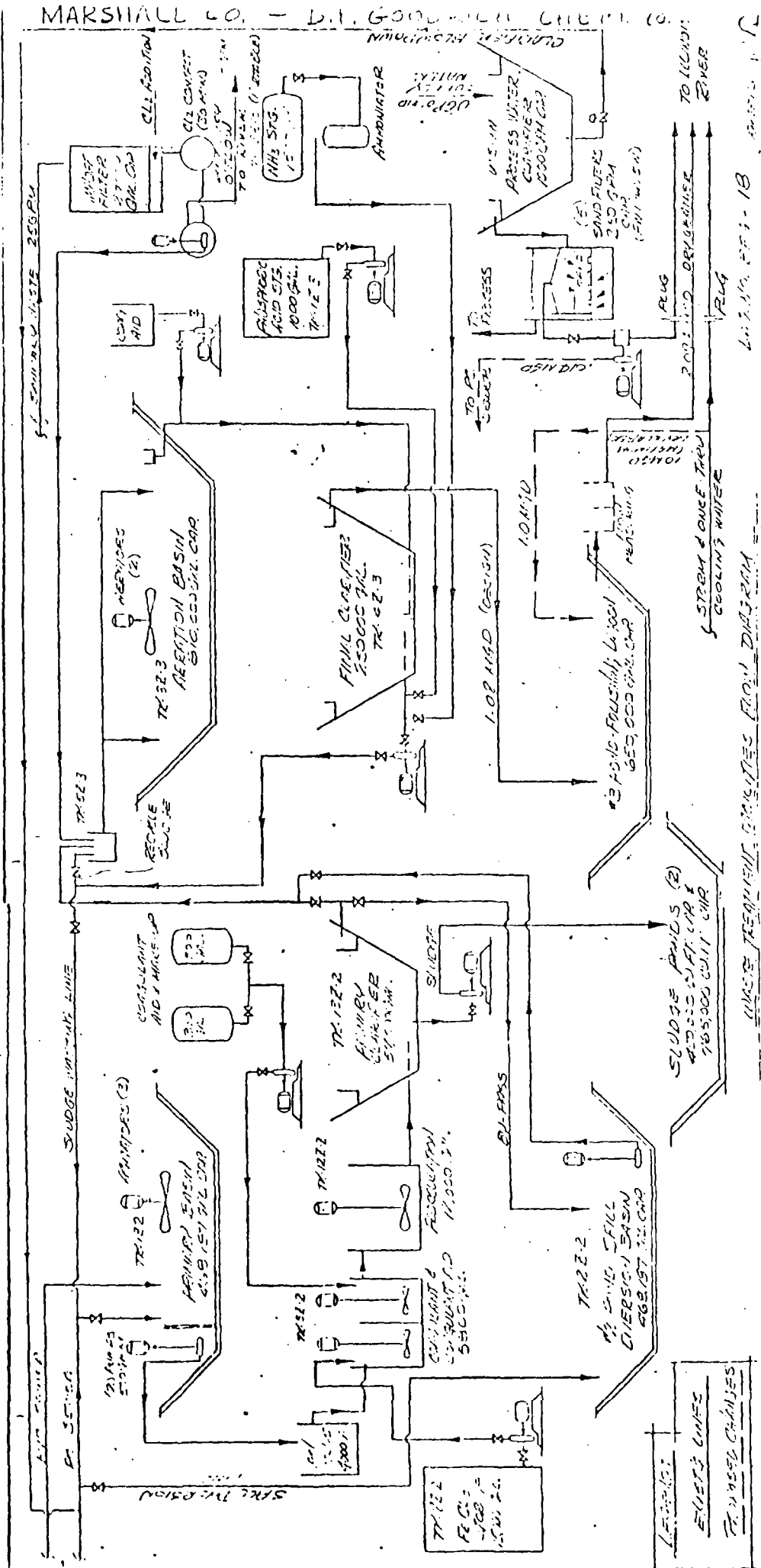
6+0

8+0

10+0

12+0

14



Management COMMUNICATOR

Henry Plant

June 20, 1974

It came to my attention that the Polymer Chemical's waste stream was diverted to the river for about eight hours on Tuesday, June 18, 1974.

According to Public Law 92-500 any individual that has knowledge concerning such diversions or accidental spills is required to contact the Federal EPA as soon as possible. In the event this is not done, that individual can be assessed a \$10,000 penalty.

The above diversion has been reported to the Federal EPA. It must be the objective of all individuals in the Plant to prevent such discharges. If accidental spills or diversions do occur, the Environmental Engineer should be contacted as soon as possible.

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ILL. E.P.A. - D.L.P.C.
STATE OF ILLINOIS

C. B. Cooper

CBC:vck

THIS WAS SENT TO ALL SUPERVISORS BY THE
PLANT MANAGER, C.B. COOPER.

Communication Is A Part Of Everybody's Job !

WEEKLY WASTE TREATMENT DATA SHEET

Week of 10/29/73 to 11/4/73Composite
Waste Treatment Samples (PPM)

Test	From PC	From PVC	To the River
COD	2239	76	197
BOD			13.8
Total N ₂ ^{ammonia}	1.2	4.0	2.2
Phosphate	42.0	38.0	1.48
T.S.	10483	1040	4053
S.S.	1090	653	20.6
F.T.S.	9524	184	3800
Chloride	2729	57	995
Sulfate	2000	200	1250
Phenol			0.17
Total Hardness	130	160	390
Ammonia N ₂			23.8
Kjeldahl N ₂			7.3

Daily pH Data on
Waste Treatment Samples

	From PC	From PVC	To the River
Monday	8.6	7.0	7.0
Tuesday	8.1	8.0	7.1
Wednesday	11.7	8.5	6.9
Thursday	12.0	8.7	7.0
Friday	9.6	8.5	7.1
Saturday	10.5	7.1	6.5
Sunday	2.1	7.3	6.4

Comments: _____

cc: C.B. Cooper
C.E. Kemp
M.D. Tawney
A.W. Otto
W.C. Holbrook

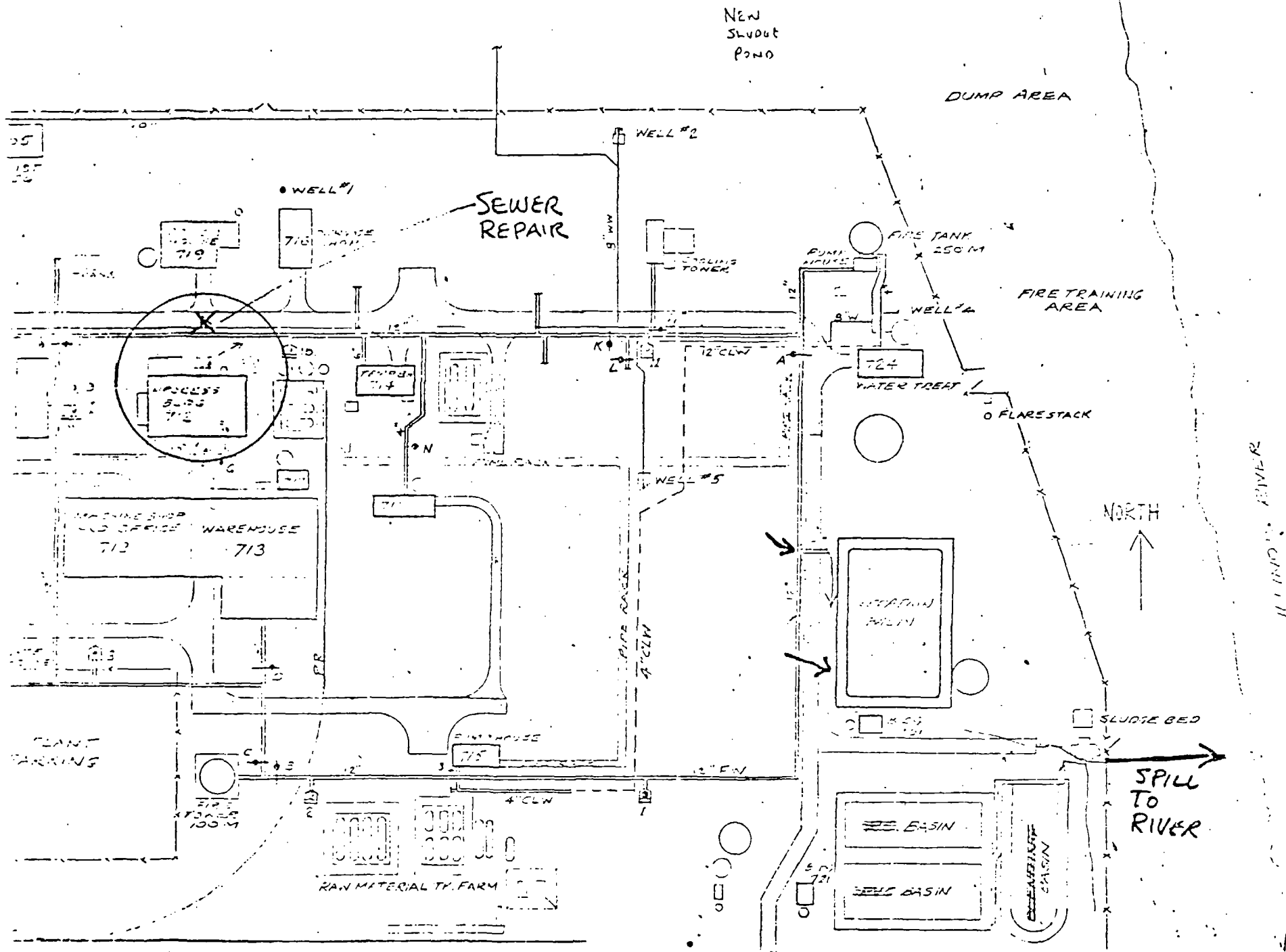
C.D. McCrosky
W.W. Walk
H.L. Kuchanmeister
R.J. Rabbitt
Original (D.W. Lou)
D.E. Giffin

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ILL. E.P.A. -
STATE OF

B.F. GOODRICH CLEM Co.



B.F. GOODRICH CHEM. (HENRY)

MONTH	FLOW - M.G.D.			Primary Influent		Secondary Influent		Secondary Effluent Plant Discharge				
	MAX.	MIN.	AVG.	Suspended Solids mg/l	COD mg/l	Suspended Solids mg/l	BOD mg/l	Suspended Solids mg/l	BOD mg/l	Fixed Total Solids mg/l	Chloride (Cl-) mg/l	Phos mg/l
1975												
MAY	1.01	0.693	0.823	1624	1139	51	314	24	10	4410	806	0.1
JUNE	1.036	0.576	0.821	1691	995	43	315	25	21	3201	902	0.1
JULY	1.152	0.655	0.992	1417	981	63	296	17	19	3692	1152	0.1
AUG	1.123	0.619	0.900	1450	704	43	183	14	16	3424	1094	0.1
SEPT	1.130	0.734	0.925	1577	520	54	201	13	11	3102	855	0.1
OCT	1.109	0.720	0.973	1360	893	65	263	19	15	3310	1311	0.1
NOV	1.137	0.763	1.074	1333	1119	87	296	31	17	3708	1016	0.1
DEC	1.123	0.432	0.905	1074	1153	67	288	24	35	3725	1224	0.1
1976												
JAN	1.152	0.677	0.936	1329	1383	106	210	25	63	4000	1126	0.1
FEB	1.094	0.720	0.933	831	1493	63	206	38	45	4107	1173	0.1
MARCH	1.109	0.773	0.904	753	1366	72	247	95	133	4654	1086	0.02
APRIL	1.066	0.576	0.823	1252	1624	80	231	45	24	4610	1393	0.10
TOT.	13.24	7.185	11.109	15,751	13,410	804	3110	375	409	46,543	13148	2.3
AVG.	1.10	0.598	0.926	1313	1118	67	259	31	34	3879	1096	0.19

All data in mg/l

[illegible]

B. F. GOODRICH (Henry, Illinois)